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TITLE : IRON-PHOSPHORUS ELECTROPLATING BATH

ABSTRACT : PURPOSE: To obtain an Fe-P electroplating bath giving an Fe-P film which does not crack by using bivalent Fe ions, hypophosphorous acid and/or hypophosphite and Al ions as essential components.

CONSTITUTION: This Fe-P electroplating bath contains 20~80g/l bivalent Fe ions, 0,01~15g/l (expressed in terms of  $\text{NaH}_2\text{PO}_2 \cdot \text{H}_2\text{O}$ ) hypophosphorous acid and/or hypophosphite and 0.05~5g/l Al ions. To the plating bath may be added  $\leq 200\text{g/l}$  electrically conductive salt such as ammonium sulfate or ammonium chloride,  $\leq 60\text{g/l}$  pH buffer such as boric acid and  $\leq 20\text{g/l}$  complexing agent for bi- or tervalent Fe ions such as acidic ammonium fluoride. The plating bath is preferably adjusted to 0.5~3.5pH. When an article is plated, the temp. of the bath is kept at room temp. ~80°C, and the current density of the cathode at 0.5~30A/dm<sup>2</sup>.

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